

IN THE CLAIMS:

1. (Currently Amended) A system for delivering a supply of gases to a patient comprising:

a gases supply means providing a flow of gases,

a humidifier humidification means receiving said flow of gases from said gases supply means and capable of humidifying said flow of gases up to a level of humidity prior to delivery to said patient,

transportation means a conduit conveying said flow of gases from said humidifier humidification means to said patient,

a sensor sensing means to sense the humidity, temperature or flow rate ~~other attributes~~ of said flow of gases flow, said sensor in use being sensing means contained within a housing that is releasably coupled in line between said humidifier humidification means and said conduit transportation means, and

a filter material breathable means is attached to said housing such that said sensor a sensor is exposed to said flow of gases flow through said filter material breathable means.

2. (Cancelled)

3. (Currently Amended) A system according to claim 1 ~~or 2~~ wherein said system sensing means includes a cartridge or open tubular section coupled to said a sensor, such that said sensor is exposed to said flow of gases flow through said cartridge or open tubular section.

4. (Currently Amended) A system according to claim 1 or 2 wherein said sensor is contained in a housing and said housing extends through or resides within a cartridge or open tubular section and at least part of said housing is exposed to said flow of gases flow.

5. (Cancelled)

6. (Previously Presented) A system according to claim 4 wherein said cartridge or open tubular section includes a port that said housing is sealably connected to.

7. (Cancelled)

8. (Currently Amended) A system according to claim 6 wherein said ~~port of~~ ~~said~~ housing exposed to said flow of gases flow is covered by ~~said~~ ~~with~~ ~~breathable~~ or filter material.

9. (Cancelled)

10. (Currently Amended) A system according to claim 6 wherein said port is covered by said ~~a~~ ~~breathable~~ or filter material.

11. (Currently Amended) A system according to claim 7 or 8 wherein said ~~breathable~~ or filter material is a semi-permeable or hydrophilic material.

12. (Currently Amended) A system according to claim 9 or 10 wherein said ~~breathable~~ or filter material is a semi-permeable or hydrophilic material.

13. (Currently Amended) A system according to claim 7 or 8 wherein said ~~breathable~~ or filter material is monolithic film, microporous media or electrostatic filter.

14. (Currently Amended) A system according to claim 9 or 10 wherein said ~~breathable~~ or filter material is monolithic film, microporous media or electrostatic filter.

15. (Currently Amended) A system according to claim 1 wherein said system sensing means includes a sensor heater heating means to provide heat to said sensor.

16. (Currently Amended) A system according to claim 15 wherein said sensor is contained in a housing and said sensor heater heating means is contained within said housing.

17. (Currently Amended) A system according to claim any one of claims 1 through 16 wherein said humidifier humidification means includes a humidification chamber adapted to receive a volume of water and a water heater heating means to heat said water, said flow of gases passing through said humidification chamber, through a gases inlet and out a gases outlet, and evaporating said water, said flow of gases thereby being humidified.

18-25. (Cancelled)

26. (Currently Amended) A system according to claim 1 wherein said humidifier humidification means includes a controller to control said water heater heating means and the level of humidity or temperature of said flow of gases flow.

27. (Currently Amended) A system according to claim 26 18 wherein said sensor sensing means is connected to said controller and conveys a sensed level of humidification of said flow of gases to said controller, said controller controlling said water heater heating means to alter said sensed level of humidification of said flow of gases to a predetermined humidification level.

28. (Currently Amended) A system according to claim 19 27 wherein said predetermined humidification level is such that said patient receives said flow of gases at 37°C and containing 44mg of water vapour per litre.

29. (Currently Amended) A system according to claim 17 wherein in use, connections are formed between one side of said cartridge or open tubular section and said outlet of said humidifier humidification means and the other side of said cartridge or open tubular section and said conduit transportation means.

30. (Currently Amended) A system according to claim 29 21, wherein said connections are one of a friction fitting, bayonet fitting, snap fitting or threadable connection.

31. (Currently Amended) A sensing device Sensing means to sense humidity, temperature or flow rate other attributes of a flow of gases flow after said flow of gases have been humidified by a humidifier and providing feedback to a controller which controls said humidifier, said sensing device means comprising:

a cartridge or open tubular section,

a sensor, and

a filter material,

breathable means;

wherein said cartridge or open tubular section is coupled to said sensor, such that said sensor is exposed to said flow of gases flow through said cartridge or open tubular section of conduit through said filter material breathable means.

32. (Currently Amended) A sensing device Sensing means according to claim 31 23 including a housing containing said sensor, said housing extending through or residing within said cartridge or open tubular section and at least part of said housing being exposed to said flow of gases flow.

33. (Currently Amended) A sensing device Sensing means according to claim 31 23 wherein said filter material breathable means is a semi-permeable or hydrophilic material.

34. (Currently Amended) A sensing device Sensing means according to claim 31 23 wherein said filter material breathable means is monolithic film, microporous media or electrostatic filter.

35. (Currently Amended) A sensing device Sensing means according to claim 31 23 wherein said sensor has a heating element attached to minimize saturation of said sensor and provide for optimal sensor performance.

36. (Currently Amended) A sensing device Sensing means according to claim 32 24 wherein said sensor housing has a heating element attached to said housing to minimize saturation of said sensor and provide for optimal sensor performance.